

# Listing of Claims

1. (Previously presented) A method for fumigating a previously habitable enclosed volume and contents and restoring habitability, comprising the steps of:  
climatizing the enclosed volume containing contents;  
generating chlorine dioxide gas using a generator;  
introducing the chlorine dioxide gas into the enclosed volume using at least one emitter;  
distributing the introduced chlorine dioxide gas in the enclosed volume;  
maintaining a residual amount of the chlorine dioxide gas within the enclosed volume at a level and duration permitting gaseous penetration of included contents as required for decontamination; and  
removing the chlorine dioxide gas from the enclosed volume, thereby fumigating the enclosed volume and contents and restoring habitability.
2. (Previously presented) The method of claim 1 wherein the step of removing the chlorine dioxide gas includes the steps of purging the generator and emitter and scrubbing chlorine dioxide gas from the enclosed volume.
3. (Original) The method of claim 1 wherein the chlorine dioxide gas is generated as a solution of chlorine dioxide gas in a liquid.
4. (Original) The method of claim 3 wherein the liquid is water.
5. (Previously presented) The method of claim 2 wherein the emitter used in the step of introducing chlorine dioxide gas is used in the step of scrubbing chlorine dioxide gas.
6. (Previously presented) The method of claim 5 wherein the emitter used in the step of introducing chlorine dioxide gas and in the step of scrubbing chlorine dioxide gas is located within the previously habitable enclosed volume.

7. (Original) The method of claim 1 wherein the step of climatizing the volume requiring fumigation includes the step of adjusting the relative humidity.
8. (Original) The method of claim 1 wherein the step of climatizing the volume requiring fumigation includes the step of adjusting the temperature.
9. (Previously presented) The method of claim 1 wherein the step of climatizing includes the step of avoiding condensation.
10. (Previously presented) The method of claim 1 wherein the step of climatizing the enclosed volume includes the step of reducing the level of illumination.
11. (Previously presented) The method of claim 1 wherein the enclosed volume is a building or an enclosed portion thereof.
12. (Previously presented) The method of claim 1 wherein the enclosed volume is a vehicle.
13. (Previously presented) The method of claim 1 wherein the step of distributing the introduced chlorine dioxide gas comprises using a heating ventilation and air conditioning (HVAC) system.
14. (Previously presented) The method of claim 1 wherein the enclosed volume is maintained substantially dark.
15. (Original) The method of claim 1 wherein the chlorine dioxide gas is present in the introduced gas at a concentration of at least 90%.

16. (Original) The method of claim 1 wherein the chlorine dioxide gas is present in the introduced gas at a concentration of at least 95%.
17. (Original) The method of claim 1 wherein the chlorine dioxide gas is present in the introduced gas at a concentration of at least 99%.
18. (Previously presented) The method of claim 1 wherein a stripper is used to climatize the enclosed volume and to introduce the chlorine dioxide gas into the enclosed volume.
19. (Previously presented) The method of claim 1 wherein said chlorine dioxide gas contains less than about 5% of chlorine gas.
20. (Previously presented) The method of claim 1 wherein said chlorine dioxide gas contains less than about 0.5% chlorine gas.
21. (Previously presented) The method of claim 1 wherein said volume is maintained at a slightly negative pressure to areas located outside of said volume.
22. (Previously presented) The method of claim 4 wherein said chlorine dioxide solution has an equilibrium partial pressure below about 26,000 ppm V.
23. (Previously presented) The method of claim 1 wherein the contents in the enclosed volume include surfaces that are gas penetrable.
24. (Previously presented) The method of claim 1 further comprising the steps of monitoring and controlling temperature and relative humidity to avoid condensation.
25. (Previously presented) The method of claim 1 wherein the temperature during the fumigating is 70-80°F and the relative humidity during the fumigating is 60-80%.

26. (Previously presented) The method of claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is 500 ppm V to about 3000 ppm V.
27. (Previously presented) The method of claim 26 wherein the fumigating is carried out for about 8 to about 12 hours.
28. (Previously presented) The method of claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is maintained at about 750 ppm V for about 8 to about 12 hours.
29. (Previously presented) The method of claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is maintained at about 1000 ppm V for about 8 to about 12 hours.
30. (Previously presented) The method claim 1 wherein the residual level of chloride dioxide in said volume during fumigating is maintained at about 3000 ppm V for about 8 to about 12 hours.
31. (Previously presented) The method of claim 1 wherein the enclosed volume is contaminated with gram positive spores.
32. (Previously presented) The method of claim 31 where said spores are *Bacillus subtilis*.
33. (Previously presented) The method of claim 31 where said spores are *Bacillus anthracis*.
34. (Previously presented) The method of claim 1 wherein the humidity is reduced to less than about 35% during removal of the chlorine dioxide gas.

35. (Previously presented) The method of claim 1 wherein the removing of the chlorine dioxide gas takes at least 5-6 hours.
36. (Previously presented) The method of claim 2 wherein a stripper is used to introduce the chlorine dioxide gas into the enclosed volume and to scrub the chlorine dioxide gas from the enclosed volume.
37. (Previously presented) The method of claim 1 wherein the step of removing the chlorine dioxide gas includes the step of introducing detoxification chemicals.
38. (Previously presented) The method of claim 37 wherein the detoxification chemicals comprise an aqueous mixture of a bisulfite and caustic.
39. (New) A method for fumigating a previously habitable enclosed volume containing *Bacillus* spores and contents and restoring habitability, comprising the steps of:
  - climatizing the enclosed volume containing contents;
  - generating chlorine dioxide gas using a generator;
  - introducing the chlorine dioxide gas into the enclosed volume using at least one emitter;
  - distributing the introduced chlorine dioxide gas in the enclosed volume; and
  - maintaining a chlorine dioxide gas concentration within the enclosed volume at a level and duration permitting gaseous penetration of included contents as required for decontamination of said *Bacillus* spores thereby fumigating the enclosed volume and contents and restoring habitability.
40. (New) The method of claim 39 further comprising the step of:
  - removing the chlorine dioxide gas by purging the generator and emitter and scrubbing chlorine dioxide gas from the enclosed volume.

41. (New) The method of claim 39 wherein the chlorine dioxide gas is generated as a solution of chlorine dioxide gas in a liquid.
42. (New) The method of claim 41 wherein the liquid is water.
43. (New) The method of claim 40 wherein the emitter used in the step of introducing chlorine dioxide gas is used in the step of scrubbing chlorine dioxide gas.
44. (New) The method of claim 43 wherein the emitter used in the step of introducing chlorine dioxide gas and in the step of scrubbing chlorine dioxide gas is located within the previously habitable enclosed volume.
45. (New) The method of claim 39 wherein the step of climatizing the volume requiring fumigation includes the step of adjusting the relative humidity.
46. (New) The method of claim 39 wherein the step of climatizing the volume requiring fumigation includes the step of adjusting the temperature.
47. (New) The method of claim 39 wherein the step of climatizing includes the step of avoiding condensation.
48. (New) The method of claim 39 wherein the step of climatizing the enclosed volume includes the step of reducing the level of illumination.
49. (New) The method of claim 39 wherein the enclosed volume is a building or an enclosed portion thereof.
50. (New) The method of claim 39 wherein the enclosed volume is a vehicle.

51. (New) The method of claim 39 wherein the step of distributing the introduced chlorine dioxide gas comprises using a heating ventilation and air conditioning (HVAC) system.
52. (New) The method of claim 39 wherein the enclosed volume is maintained substantially dark.
53. (New) The method of claim 39 wherein a stripper is used to climatize the enclosed volume and to introduce the chlorine dioxide gas into the enclosed volume.
54. (New) The method of claim 39 wherein said volume is maintained at a slightly negative pressure to areas located outside of said volume.
55. (New) The method of claim 42 wherein said chlorine dioxide solution has an equilibrium partial pressure below about 26,000 ppm V.
56. (New) The method of claim 39 wherein the contents in the enclosed volume include surfaces that are gas penetrable.
57. (New) The method of claim 39 further comprising the steps of monitoring and controlling temperature and relative humidity to avoid condensation.
58. (New) The method of claim 39 wherein the temperature during the fumigating is 70-80°F and the relative humidity during the fumigating is 60-80%.
59. (New) The method of claim 39 wherein the chloride dioxide concentration in said volume during fumigating is 500 ppm V to about 3000 ppm V.

60. (New) The method of claim 59 wherein the fumigating is carried out for about 8 to about 12 hours.
61. (New) The method of claim 39 wherein the chloride dioxide concentration in said volume during fumigating is maintained at about 750 ppm V for about 8 to about 12 hours.
62. (New) The method of claim 39 wherein the chloride dioxide concentration in said volume during fumigating is maintained at about 1000 ppm V for about 8 to about 12 hours.
63. (New) The method claim 39 wherein the chloride dioxide concentration in said volume during fumigating is maintained at about 3000 ppm V for about 8 to about 12 hours.
64. (New) The method of claim 39 where said spores are *Bacillus subtilis* spores.
65. (New) The method of claim 39 where said spores are *Bacillus anthracis* spores.
66. (New) The method of claim 40 wherein the humidity is reduced to less than about 35% during removal of the chlorine dioxide gas.
67. (New) The method of claim 40 wherein the removing of the chlorine dioxide gas takes at least 5-6 hours.
68. (New) The method of claim 40 wherein a stripper is used to introduce the chlorine dioxide gas into the enclosed volume and to scrub the chlorine dioxide gas from the enclosed volume.



69. (New) The method of claim 40 wherein the step of removing the chlorine dioxide gas includes the step of introducing detoxification chemicals.
70. (New) The method of claim 69 wherein the detoxification chemicals comprise an aqueous mixture of a bisulfite and caustic.